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on or before July 29, 2004. Applicants respectfully request reconsideration of the above-identified application in view of the following remarks.

REMARKS

The present invention relates to ink compositions comprising a liquid vehicle, at least one modified pigment comprising a pigment having attached at least one functional group, at least one salt having a polyvalent ion, and at least one polymer. The polyvalent ion can be cationic or anionic and is preferably capable of coordinating or associating with the functional group of the pigment, the polymer, or both. A method of generating an image comprising the steps of incorporating into a printing apparatus the ink composition described above and generating an image onto a substrate is also disclosed.

Claims 1-30 are pending in the present application.

Rejection of Claims under 35 U.S.C. § 102(e)

Claims 1-2, 4-13, 20-28, and 30

The Examiner has rejected the above-identified claims as being anticipated by Suzuki et al. (U.S. Patent No. 6,153,001). Applicant respectfully disagrees.

In paragraph 3 of the Final Office Action, the Examiner incorporates by reference the rejection set forth in paragraph 6 of the previous Office Action mailed May 5, 2003. The Examiner also states that, with respect to the newly added limitation to claims 1 and 27 that the functional group on the pigment is capable of coordinating with the polyvalent ion on the salt and that the functional group is anionic when the salt comprises a polyvalent cation and is cationic when the salt is a polyvalent anion, Suzuki et al. discloses that the pigment possesses attached functional groups including cationic groups and also discloses salt having a polyvalent anion.

In paragraph 10 of the Final Office Action, the Examiner states that Applicant's previous arguments have been considered but they are not persuasive. Specifically, the Examiner states that,

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while Suzuki et al. only discloses salts comprising polyvalent anions and that the preferred embodiments of Suzuki et al. discloses the use of pigment having anionic functional groups, Suzuki et al. also discloses the use of pigment having cationic functional groups. The Examiner adds that, although the use of pigment having anionic functional groups is preferred, nonpreferred disclosures can be used. The Examiner concludes that it is clear that pigment having a cationic functional group would inherently be capable of coordinating with the polyvalent anion of the salt. For the following reasons, this rejection is respectfully traversed.

Regarding claims 1-2, 4-13, and 20-26, claim 1 relates to an ink composition comprising a) a liquid vehicle, b) at least one modified pigment comprising a pigment having attached at least one functional group, c) at least one salt having a polyvalent ion, and d) at least one polymer. The functional group is capable of coordinating with the polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion

Suzuki et al. relates to an ink jet recording ink containing water, an aqueous organic solvent, a surfactant, and a self-dispersing pigment. The self-dispersing pigment is a pigment having a surface functional group such as hydrophilic solubilizing groups which are nonionic, cationic, or anionic (see column 7, lines 35-39). Additionally, Suzuki et al. states that, if necessary, pH regulating agents may be used in the ink composition, some of which are salts having polyvalent anions (see column 13, line 16).

However, unlike the claimed invention, Suzuki et al. does not disclose an ink composition comprising a specific combination of a modified pigment comprising pigment having attached at least one functional group and a polyvalent salt, wherein the functional group is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion. No guidance is provided in this reference for how to choose specific combinations of modified pigments and polyvalent salts. Rather, Suzuki et al. indicates that, to control the pH of the ink containing a modified pigment, a pH regulating agent, including pH buffers, can be used, and various examples are given. However, there is no disclosure that any of these pH regulating agents, and, in particular, the two that can be classified as salts having a

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polyvalent ion, should or could be used in combination with any of the modified pigments. Furthermore, none of the many Examples set forth in Suzuki et al. provide a combination of a modified pigment and salt having a polyvalent ion in which either the functional group of the modified pigment is cationic and salt is anionic or vice versa. See *In re Baird*, 29 U.S.P.Q.2d 1550 (Fed. Cir. 1994).

Therefore, in order to have arrived at the specific combination of modified pigment and polyvalent salt of present claim 1, the Examiner is picking and choosing various aspects of Suzuki et al., even though there is no disclosure in this reference that would suggest that such combinations would be possible. Applicants therefore believe that the Examiner has chosen this combination with the improper benefit of hindsight, taking into account the details provided in the present disclosure.

Furthermore, Applicant believes that Suzuki et al. actually teaches away from the combination of the modified pigment and polyvalent salt recited in present claim 1. For example, Suzuki et al. describes an ink jet recording method in which an image formed by printing the ink jet ink is traced with one or more aqueous solutions (see column 15, line 45 to column 17, line 55). The image tracing can be either just before, just after, or at the same time as the printing of the image with the ink jet ink. The aqueous solution preferably contains a fixing agent "which will bind a hydrophilic functional group of the pigment contained in the ink" (see column 16, lines 1-10). The fixing agent includes polyvalent metal salts (see column 16, line 60 to column 17, line 7). Suzuki et al. specifically states that "[a] combination of an ink comprising a pigment having an anionic, hydrophilic functional group and a fixing agent comprising an aqueous polymer having a cationic group is especially preferable" (see column 16, lines 10-13). Also, "[w]hen the hydrophilic, functional group contained in the pigment used in the ink comprises an anionic group, it is also preferable that the fixing agent comprises an inorganic polyvalent cation" (see column 16, line 23-28). Examples are given, which include many of the preferred polyvalent salts disclosed in paragraph [0040] of the present application.

Thus, according to the disclosure of Suzuki et al., combinations of modified pigments containing a pigment having attached at least one functional group and salt having a polyvalent

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ion, wherein the functional group is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion, would not be a viable ink since the salt having the polyvalent ion would act as a fixing agent for this ink. Since fixing agents suppress the penetration of a colorant in an ink, thereby obtaining an image that is firmly fixed (see column 16, lines 60-64), one skilled in the art would readily conclude that, based on Suzuki et al, these fixing agents would cause destabilization of the ink and should therefore be avoided. Thus, Suzuki et al. clearly teaches away from the specific combinations recited in present claim 1.

As further evidence of this, Suzuki et al. also states that "increased amount[s] of Mg and Fe in the ink promotes the coagulation of the pigment" (see column 16, lines 37-38) and that it is therefore preferable that the amount of Mg and Fe in the ink be extremely low. These same polyvalent metal salts are listed as examples of fixing agents. Thus, as stated in Suzuki et al, these polyvalent cationic salts fixing agents would cause the coagulation of modified pigments in the ink, which teaches away from the claimed invention.

Applicant therefore believes that claim 1 is not anticipated by Suzuki et al. Furthermore, claims 2, 4-13, and 20-26, which depend either directly or indirectly from claim 1, recite further embodiments of the present invention and, for at least the reasons discussed above, are also not anticipated by this reference.

Regarding claims 27-28 and 30, claim 27 relates to a method of generating an image comprising the steps of: 1) incorporating into a printing apparatus an ink composition comprising a liquid vehicle, at least one modified pigment comprising a pigment having attached at least one functional group, at least one salt with a polyvalent ion, and at least one polymer, and 2) generating an image on a substrate, wherein said functional group is capable of coordinating with said polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion. This claim therefore relates to an image generating method using the ink composition of claim 1. Since Applicant believes Suzuki et al. does not disclose the ink composition of the present invention, this reference therefore cannot disclose the method of claim 27.

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Applicant therefore believes that claim 27 is not anticipated by Suzuki et al. Furthermore, claims 28 and 30, which depend directly from claim 27, recite further embodiments of the claimed invention and, for at least the reasons discussed above, are also not anticipated by this reference.

Therefore, Applicant believes that claims 1-2, 4-13, 20-28, and 30 are not anticipated by Suzuki et al. and respectfully requests that this rejection be withdrawn.

Rejection of Claims under 35 U.S.C. § 103(a)

Claims 1-2, 4-9, 11-12, 14-25, 27-28, and 30

The Examiner has rejected the above-identified claims as being unpatentable over WO 96/18695 in view of Lin (U.S. Patent No. 5,997,623). Applicant respectfully disagrees.

In paragraph 5 of the Final Office Action, the Examiner incorporates by reference the rejection set forth in paragraph 6 of the previous Office Action mailed May 5, 2003. The Examiner also states that, with respect to the newly added limitation to claims 1 and 27 that the functional group on the pigment is capable of coordinating with the polyvalent ion on the salt and that the functional group is anionic when the salt comprises a polyvalent cation and is cationic when the salt is a polyvalent anion, WO 96/18695 discloses pigment possessing an attached anionic functional group while Lin discloses salt having a polyvalent cation. The Examiner concludes that, given that the combination of WO 96/18695 and Lin relates to modified pigment and salt identical to those presently claimed, it is clear that the anionically modified pigment would intrinsically be capable of coordinating with the polyvalent cation of the salt as required in the present claims.

In paragraph 10 of the Final Office Action, the Examiner states that Applicant's previous arguments have been considered but they are not persuasive. Specifically, the Examiner states that,

- 1) Lin discloses that modified pigments, i.e. pigments having anionic functional groups, are utilized in the ink,
- 2) WO 96/18695 discloses ink comprising aqueous liquid vehicle, modified pigment having attached anionic functional groups, and polymer but does not disclose a salt having polyvalent ion,

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which is why this reference is combined with Lin, and that motivation for using such salt is to produce ink with desirable conductivity as well as to produce ink which exhibits reduced intercolor bleed,

3) given that Lin discloses ink successfully utilizing a combination of modified pigment including pigment having an anionic functional group and salt comprising a polyvalent ion, it would have been obvious to one of ordinary skill in the art to use such salt in the ink of WO 96/18695 which comprises such modified pigment, and

4) while there is no explicit disclosure of utilizing pigment wherein the functional group is anionic while the salt comprises a polyvalent cation or vice versa, given that WO 96/18695 discloses pigment having an anionic functional group while Lin discloses salt having a polyvalent cation, it would have been obvious to one of ordinary skill in the art, absent evidence to the contrary, to use such pigment and salt and thereby arrive at the claimed invention. For the following reasons, this rejection is respectfully traversed.

Regarding claims 1-2, 4-9, 11-12, and 14-25, claim 1 relates to an ink composition comprising a) a liquid vehicle, b) at least one modified pigment comprising a pigment having attached at least one functional group, c) at least one salt having a polyvalent ion, and d) at least one polymer. The functional group is capable of coordinating with the polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion.

WO 96/18695 discloses an aqueous ink jet ink comprising an aqueous vehicle and a modified carbon product comprising carbon having attached at least one organic group. The organic group comprises at least one ionic or ionizable group. A variety of additives, including polymers having functional groups, may be added. However, there is no disclosure of the use of a polyvalent salt in combination with the polymer and the modified carbon product, and, in particular, no teaching or suggestion of the specific combination of modified pigment having an attached functional group and polyvalent salt recited in present claim 1 (i.e., wherein the functional group is anionic when the salt comprises a polyvalent cation or cationic when the salt comprises a polyvalent anion).

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Lin relates to an aqueous ink jet ink containing water, a colorant such as a dye or a pigment, and a diol derivative having a specified formula. Pigment particles, such as those modified chemically to possess ionizable functional groups in water, can also be used. Lin further states that the ink jet ink may optionally contain a water soluble or miscible microwave coupler. Various salts for this purpose are mentioned, including salts having polyvalent cations or anions. However, as with WO 96/18695, there is also no teaching or suggestion in Lin of the specific combination of modified pigment having an attached functional group and polyvalent salt recited in present claim 1. In particular, nowhere in Lin is there any teaching or suggestion that a modified pigment having a functional group that is anionic should or could be used with a salt comprising a polyvalent cation or that a modified pigment having a functional group that is cationic should or could be used with a salt comprising a polyvalent anion. Lin either doesn't include a modified pigment having an attached functional group or doesn't include a polyvalent salt capable of coordinating with a modified pigment.

Therefore, while WO 96/18695 teaches various modified carbon products and Lin mentions various microwave couplers, including polyvalent salts, that can be used in an ink jet ink, these are in no way specific to the claimed invention. No guidance is provided in these references, either alone or in combination, as to how to choose specific combinations of modified pigments and polyvalent salts. More particularly, there is no teaching or suggestion that would lead one skilled in the art to combine either a modified pigment having attached at least one anionic functional group and a salt having a polyvalent cation or a modified pigment having attached at least one cationic functional group and a salt having a polyvalent anion, given the disclosures of WO 96/18695 and Lin. See *In re Baird*.

Applicant believes that the only way to have arrived at the combination of the specific type of modified pigment product and specific type of polyvalent salt disclosed in present claim 1 is from the present disclosure. For example, paragraph [0045] of the present application teaches that, while any combination of salt, modified pigments, and polymers are possible, "the polyvalent ion of the salt is one that is capable of coordinating or associating with either the functional group of the modified pigment, the polymer, or preferably, both." Furthermore, the specific combinations of

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anionic functional group with polyvalent cationic salts and cationic functional groups with polyvalent anionic salts are described. In addition, despite the expected "flocculation of the pigment" observed and described in paragraph [0046], surprisingly the addition of the polymer is then found to redisperse the pigment. Finally, the Examples show how these combinations can be produced and the performance improvements that result.

Additionally, Lin states that the salts having polyvalent ions exhibit a high degree of ionization in aqueous inks and help avoid intercolor bleed when the ink is printed next to, for example, a pigment based ink that is stabilized by an anionic dispersant (column 14, lines 56-62).

This is due to the interaction of the disclosed ink, which has the polyvalent ion, and the anionic dispersant of the second ink. Furthermore, Lin states that it is desirable for the multi-valent metal salts to be compatible with the components of the ink, including the pigment, and are chosen so that they will not cause latency or jetting problems (column 15, lines 17-24). One skilled in the art, in considering this teaching of Lin, would therefore not use a salt having a polyvalent ion in an ink composition having a modified pigment, as in WO 96/18695, since it would be expected that destabilization of the ink would occur. This is further supported by the disclosure of the present invention (see paragraph [0046]) in which it is described that flocculation of the pigment can result when the salt having a polyvalent ion is added to a modified pigment. The addition of a polymer is then found to redisperse the pigment, but this could only have been learned through hindsight.

Therefore, Applicant believes that, in order to have arrived at the specific combination of modified pigment and polyvalent salt of present claim 1, the Examiner is picking and choosing various aspects of the general disclosures of WO 96/18695 and Lin, without any teaching in these references that would suggest that such combinations would be possible. The references in their entirety must be considered and not portions of the cited references. Applicants therefore believe that the Examiner has chosen this combination with the improper benefit of hindsight, taking into account the details provided in the present disclosure.

Applicant therefore believes that claim 1 is patentable over WO 96/18695 in view of Lin. Furthermore, claims 2, 4-9, 11-12, and 14-25, which depend either directly or indirectly from

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claim 1, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over these references.

Regarding claims 27-28 and 30, claim 27 relates to a method of generating an image comprising the steps of: 1) incorporating into a printing apparatus an ink composition comprising a liquid vehicle, at least one modified pigment comprising a pigment having attached at least one functional group, at least one salt with a polyvalent ion, and at least one polymer, and 2) generating an image on a substrate, wherein said functional group is capable of coordinating with said polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion. This claim therefore relates to an image generating method using the ink composition of claim 1. Since Applicant believes claim 1 is not obvious based on WO 96/18695 in view of Lin, the method of claim 27 is also not obvious based on these references.

Applicant therefore believes that claim 27 is patentable over WO 96/18695 in view of Lin. Furthermore, claims 28 and 30, which depend directly from claim 27, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over these reference.

Therefore, Applicant believes that claims 1-2, 4-9, 11-12, 14-25, 27-28, and 30 are patentable over WO 96/18695 in view of Lin and respectfully requests that this rejection be withdrawn.

Claims 1-10 and 13-30

The Examiner has rejected the above-identified claims as being unpatentable over Yu et al. (U.S. Patent No. 6,494,943) in view of Lin (U.S. Patent No. 5,997,623). Applicant respectfully disagrees.

In paragraph 6 of the Final Office Action, the Examiner incorporates by reference the rejection set forth in paragraph 9 of the previous Office Action mailed May 5, 2003. The Examiner also states that, with respect to the newly added limitation to claims 1 and 27 that the functional group on the pigment is capable of coordinating with the polyvalent ion on the salt and that the

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functional group is anionic when the salt comprises a polyvalent cation and is cationic when the salt is a polyvalent anion, Yu et al. discloses pigment possessing an attached anionic functional group while Lin mentions salt having a polyvalent cation. The Examiner concludes that, given that the combination of Yu et al. and Lin discloses modified pigment and salt identical to those presently claimed, it is clear that the anionically modified pigment would intrinsically be capable of coordinating with the polyvalent cation of the salt as required in the present claims.

In paragraph 10 of the Final Office Action, the Examiner states that Applicant's previous arguments have been considered but they are not persuasive. Specifically, the Examiner states that,

1) Lin discloses that modified pigments, i.e. pigments having anionic functional groups, are utilized in the ink,

2) Yu et al. discloses ink comprising aqueous liquid vehicle, modified pigment having attached anionic functional groups, and polymer but does not disclose a salt having polyvalent ion, which is why this reference is combined with Lin, and that motivation for using such salt is to produce ink with desirable conductivity as well as to produce ink which exhibits reduced intercolor bleed,

3) given that Lin states that ink successfully utilizing a combination of modified pigment including pigment having anionic functional group and salt comprising a polyvalent ion, it would have been obvious to one of ordinary skill in the art to use such salt in the ink of Yu et al. which comprises such modified pigment, and

4) while there is no explicit disclosure of utilizing pigment wherein the functional group is anionic while the salt comprises a polyvalent cation or vice versa, given that Yu et al. discloses pigment having anionic functional group while Lin discloses salt having polyvalent cation, it would have been obvious to one of ordinary skill in the art, absent evidence to the contrary, to use such pigment and salt and thereby arrive at the claimed invention. For the following reasons, this rejection is respectfully traversed.

Yu et al. is prior art only under 35 U.S.C. §102(e)/103. The present invention and Yu et al. have common ownership and therefore under 35 U.S.C. §103(c), this rejection is not proper and should be withdrawn. To assist the Examiner, attached to this response are copies of the recorded

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Assignments for the present application and Yu et al. In view of this information, this rejection should be withdrawn.

Further, the comments regarding Lin above apply equally here.

Therefore, Applicant believes that claims 1-10 and 13-30 are patentable over Yu et al. in view of Lin and respectfully requests that this rejection be withdrawn.

Claims 1-2, 4-9, 11-17, 21-25, 27-28, and 30

The Examiner has rejected the above-identified claims as being unpatentable over Zhu (U.S. Patent No. 5,889,083) in view of WO 96/18695. Applicant respectfully disagrees.

In paragraph 7 of the Final Office Action, the Examiner incorporates by reference the rejection set forth in paragraph 10 of the previous Office Action mailed May 5, 2003. The Examiner also states that, with respect to the newly added limitation to claims 1 and 27 that the functional group on the pigment is capable of coordinating with the polyvalent ion on the salt and that the functional group is anionic when the salt comprises a polyvalent cation and is cationic when the salt is a polyvalent anion, Zhu relates to salt containing a polyvalent cation while WO 96/18695 discloses pigment possessing an attached anionic functional group. The Examiner concludes that, given that the combination of Zhu and WO 96/18695 shows a modified pigment and salt identical to those presently claimed, it is clear that the anionically modified pigment would intrinsically be capable of coordinating with the polyvalent cation of the salt as required in the present claims.

In paragraph 10 of the Final Office Action, the Examiner states that Applicant's previous arguments have been considered but they are not persuasive. Specifically, the Examiner states that, while it is agreed that there is no disclosure in Zhu of a modified pigment, this is why Zhu is used in combination with WO 96/18695. The Examiner states that WO 96/18695 discloses the use of modified pigments identical to that presently claimed and further discloses that it is advantageous to use modified pigment instead of conventional pigments given that modified pigments (having ionic functional group) are easier to disperse and do not require the use of dispersant. The Examiner concludes that, given that WO 96/18695 is drawn to the same field of endeavor as Zhu and given

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that there is proper motivation to combine the references, one of ordinary skill in the art would combine Zhu with WO 96/18695, even though Applicant argued that one skilled in the art would expect destabilization. For the following reasons, this rejection is respectfully traversed.

Regarding claims 1-2, 4-9, 11-17, and 21-25, claim 1 relates to an ink composition comprising a) a liquid vehicle, b) at least one modified pigment comprising a pigment having attached at least one functional group, c) at least one salt having a polyvalent ion, and d) at least one polymer. The functional group is capable of coordinating with the polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion.

Zhu relates to an aqueous jet ink composition comprising water, a colorant, a binder resin, and a wax, as well as a process for preparing and printing this ink. An example of the colorant is carbon black, and an example of a binder resin is a styrene-acrylic copolymer. Zhu further states that the jet ink compositions may also contain a conductivity agent. Various salts for this purpose are mentioned, including calcium chloride. However, there is no teaching in Zhu of an ink composition comprising a modified pigment having attached at least one organic group. Only conventional pigments are disclosed. Furthermore, there is no teaching or suggestion of the specific combination of modified pigment having an attached functional group and a polyvalent salt as recited in present claim 1 (i.e., wherein the functional group is anionic when the salt comprises a polyvalent cation or cationic when the salt comprises a polyvalent anion).

WO 96/18695 discloses an aqueous ink jet ink comprising an aqueous vehicle and a modified carbon product comprising carbon having attached at least one organic group. The organic group comprises at least one ionic or ionizable group. A variety of additives, including polymers having functional groups, may be added. However, as with Zhu, there is also no disclosure of the use of a polyvalent salt in combination with the polymer and the modified carbon product, and, in particular, no teaching or suggestion of the specific combination of modified pigment having an attached functional group and polyvalent salt recited in present claim 1 (i.e., wherein the functional group is anionic when the salt comprises a polyvalent cation or cationic when the salt comprises a polyvalent anion).

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Even though both Zhu and WO 96/18695 relate to the same field of endeavor, Applicant believes that these references would not be combined by one skilled in the art and thereby arrive at the present invention. It is well known in the art that salts, particularly salts comprising polyvalent ions, would destabilize ionically stabilized pigments. This is particularly true when the polyvalent ion has a charge opposite to that of the ionically stabilized pigment. The present application supports this (see, for example, paragraph [0046] which states that "addition of the salt may result in flocculation of the pigment"). One skilled in the art, in considering the teaching of Zhu, would therefore not use a modified pigment having an attached organic group in an ink composition having a polyvalent metal cation, as in Zhu, since it would be expected that destabilization of the ink would occur. Thus, even if one skilled in the art were to combine these references, Applicant believes, in order to avoid flocculation, one skilled in the art would only combine a modified pigment having an attached cationic functional group with a salt having a polyvalent cation, such as the calcium chloride conductivity agent set forth in Zhu, which is the single example of a polyvalent salt mentioned by Zhu. This is clearly not the ink jet ink of the claimed invention.

Furthermore, while WO 96/18695 teaches various modified carbon products and Zhu shows various conductivity agents, including one polyvalent salt (calcium chloride), that can be used in an ink jet ink, there is absolutely no guidance or suggestion provided in these references, either alone or in combination, as to how to choose specific combinations of modified pigments and polyvalent salts. More particularly, there is no teaching or suggestion that would lead one skilled in the art to combine either a modified pigment having attached at least one anionic functional group and a salt having a polyvalent cation or a modified pigment having attached at least one cationic functional group and a salt having a polyvalent anion, given the disclosures of WO 96/18695 and Zhu.

Applicant believes that the only way to have arrived at the combination of the specific type of modified pigment product and specific type of polyvalent salt disclosed in present claim 1 is from the present disclosure. For example, paragraph [0045] of the present application teaches that, while any combination of salt, modified pigments, and polymers are possible, 'the polyvalent ion is an ion which is capable of coordinating or associating with either the functional group of the

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modified pigment, the polymer, or preferably, both.” Furthermore, the specific combinations of anionic functional group with polyvalent cationic salts and cationic functional groups with polyvalent anionic salts are described. In addition, despite the expected “flocculation of the pigment” observed and described in paragraph [0046], surprisingly the addition of the polymer is then found to redisperse the pigment. Finally, the Examples show how these combinations can be produced and the performance improvements that result.

Therefore, Applicant believes that, in order to have arrived at the specific combination of modified pigment and polyvalent salt of present claim 1, the Examiner is picking and choosing various aspects of WO 96/18695 and Zhu and not taking into account the references as a whole. There is no teaching or suggestion in these references that would suggest that such combinations would be possible. Applicants therefore believe that the Examiner has chosen this combination with the improper benefit of hindsight, taking into account the details provided in the present disclosure.

Applicant therefore believes that claim 1 is patentable over Zhu in view of WO 96/18596. Furthermore, claims 2, 4-9, 11-12, and 14-25, which depend either directly or indirectly from claim 1, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over these references.

Regarding claims 27-28 and 30, claim 27 as amended relates to a method of generating an image comprising the steps of: 1) incorporating into a printing apparatus an ink composition comprising a liquid vehicle, at least one modified pigment comprising a pigment having attached at least one functional group, at least one salt with a polyvalent ion, and at least one polymer, and 2) generating an image on a substrate, wherein said functional group is capable of coordinating with said polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion. This claim therefore relates to an image generating method using the ink composition of claim 1. Since Applicant believes claim 1 is not obvious based on Zhu in view of WO 96/18695, the method of claim 27 is also not obvious based on these references.

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Applicant therefore believes that claim 27 is patentable over Zhu in view of WO 96/18596. Furthermore, claims 28 and 30, which depend directly from claim 27, recite further embodiments of the present invention and, for at least the reasons discussed above, are also patentable over these reference.

Therefore, Applicant believes that claims 1-2, 4-9, 11-17, 21-25, 27-28, and 30 are patentable over Zhu in view of WO 96/18695 and respectfully requests that this rejection be withdrawn.

Claims 18-20

The Examiner has rejected the above-identified claims as being unpatentable over Zhu (U.S. Patent No. 5,889,083) in view of WO 96/18695, as applied to claims 1-2, 4-9, 11-17, 21-25, 27-28, and 30 above, and further in view of Lin (U.S. Patent No. 5,997,623). Applicant respectfully disagrees.

In paragraph 8 of the Final Office Action, the Examiner incorporates by reference the rejection set forth in paragraph 10 of the previous Office Action mailed May 5, 2003. In paragraph 10 of the Final Office Action, the Examiner also states that Applicant's previous arguments have been considered but they are not persuasive. The reasons regarding each of Zhu, WO 96/18695, and Lin are discussed in more detail above.

Regarding claims 18-20, these claims depend directly from claim 1, which relates to an ink composition comprising a) a liquid vehicle, b) at least one modified pigment comprising a pigment having attached at least one functional group, c) at least one salt having a polyvalent ion, and d) at least one polymer. The functional group is capable of coordinating with the polyvalent ion and is anionic when the salt comprises a polyvalent cation or is cationic when the salt comprises a polyvalent anion.

As discussed in more detail above, since Zhu relates to ink compositions containing conventional pigments while WO 96/18695 relates to ink compositions containing modified pigments, Applicant believes, in order to avoid flocculation, one skilled in the art would only combine a modified pigment having an attached cationic functional group with a salt having a

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polyvalent cation, such as the calcium chloride conductivity agent set forth in Zhu, which is the single example of a polyvalent salt in Zhu. This is clearly not the ink jet ink of the present invention. One skilled in the art would not use a modified pigment having an attached organic group in an ink composition having a polyvalent metal cation, as in Zhu, since it would be expected that destabilization of the ink would occur.

Additionally, there is no teaching or suggestion in Zhu that any other types of salts having polyvalent ions could be used. Only one – calcium chloride – is described. All of the other salts do not have a polyvalent cation. Also, no salts having a polyvalent anion are shown.

To cure this deficiency, the Examiner combines both of these references with Lin. However, as discussed in more detail above, there is no teaching in Lin of an ink composition having a modified pigment having attached at least one organic group. Only conventional pigments are set forth. Therefore, one skilled in the art, in considering the teaching of Lin, would also not use any of the salts having a polyvalent ion, and, in particular, those having a Zn^{+2} , Zr^{+2} , or a polyvalent anion, in an ink composition having a modified pigment, as in WO 96/18695, since it would be expected that destabilization of the ink would occur, regardless of the equivalence and interchangeability of the salts presumed by the Examiner.

Applicant believes, as discussed in more detail above, that the only way to have arrived at the combination of the specific type of modified pigment product and specific type of polyvalent salt recited in present claims 18-20 is from the present disclosure. Applicant further believes that, in order to have arrived at the specific combination of modified pigment and specific types of salts having a polyvalent ion of present claims 18-20, the Examiner is picking and choosing various aspects of each of WO 96/18695, Zhu, and Lin even though there is no teaching or suggestion in these references that would suggest that such combinations would be possible. The references as a whole must be considered, and not isolated portions. Applicants therefore believe that the Examiner has chosen this combination with the improper benefit of hindsight, taking into account the details provided in the present disclosure.

Therefore, Applicant believes that claims 18-20 are patentable over Zhu in view of WO 96/18596 and further in view of Lin, and respectfully requests that this rejection be withdrawn.

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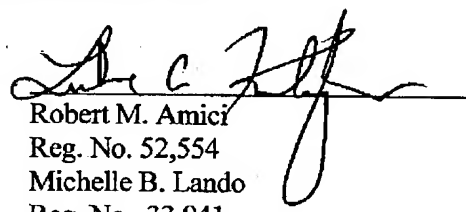
Conclusion

In view of the foregoing remarks, Applicant believes that this application is considered to be in good and proper form for allowance, and the Examiner is respectfully requested to pass this application to issue. If, in the opinion of the Examiner, a telephone conference would further expedite the prosecution of the subject application, the Examiner is invited to call the undersigned attorney.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,

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